

Claims:

1. A probe positioning and bonding device comprising:
a stage unit disposed on a working table;
a microscope disposed above the stage unit while being supported by means
5 of a first supporting member disposed on the working table;
a probe fixing unit disposed above the stage unit and below the microscope
while being supported by means of a second supporting member disposed on the
working table; and
a light source unit supported by means of a third supporting member disposed
10 on the working table, the light source unit being disposed toward the upper part of the
stage unit.

2. The device as set forth in claim 1,
wherein the stage unit comprises: an x-axis moving stage; a y-axis moving
stage; a z-axis moving stage; and a rotating stage, the rotating stage being rotated about
15 the z-axis, and
wherein the x-axis moving stage, the y-axis moving stage, the z-axis moving
stage, and the rotating stage are vertically disposed one on another from bottom to top.

3. The device as set forth in claim 1 or 2, wherein the probe fixing unit
comprises:
20 a pincette for holding the probe;
a reciprocating mover having a piston structure driven by means of air or a
solenoid for operating the pincette; and
a bracket for supporting the pincette and the reciprocating mover.

4. The device as set forth in claim 3, wherein the probe fixing unit further
25 comprises a z-axis moving stage connected to the bracket such that the stage is slidably
moved on the second supporting member.

5. The device as set forth in claim 3,

wherein the probe fixing unit further comprises: an adjusting member for adjusting the position of the pincette in the x direction; an open angle controller for restricting an open angle of the pincette to a prescribed limit; and a z-axis moving stage connected to the bracket such that the stage is slidably moved on the second supporting member, and

wherein the pincette has grooves formed at the insides of the lower ends thereof, respectively.

6. The device as set forth in any one of claims 1, 2, 4, and 5, wherein the light source unit is a laser-generating apparatus.

10 7. A probe bonding method comprising:

a step 1 for disposing a substrate having a bonding agent applied to a prescribed area thereof on a stage, and operating the stage to place a prescribed point of the substrate on the focal point of the microscope having the fixed position;

15 a step 2 for fixedly placing the probe on the focal point of the microscope to contact the probe to the prescribed point on the substrate; and

a step 3 for emitting a laser beam to the connected parts of the prescribed point and the probe to bond the probe on the substrate,

20 wherein a plurality of probes are bonded on the substrate by successively repeating the steps 1 to 3 so that the probes having a prescribed arrangement are formed on the substrate.

8. The method as set forth in claim 7,

further comprising, between the step 1 and the step 2, a step for unloading the stage from the focal point of the microscope to provide a space for a probe feeding operation,

25 wherein the unloaded stage is loaded to the focal point of the microscope at the step 2 so that the prescribed point on the substrate is connected to one end of the probe.

9. The method as set forth in claim 8,

further comprising, before the step 2, a step for fixing the probe to a prescribed part of the probe fixing unit disposed on the focal point of the microscope so that the probe is placed on the focal point of the microscope, and

5 further comprising, after the step 3, a step for releasing the bonded probe from the prescribed part of the probe fixing unit.

10. The method as set forth in claim 7,

wherein the probe is fixed to the prescribed part of the probe fixing unit placed on the focal point of the microscope to put the probe on the focal point of the microscope at the step 2 so that the probe is connected to the prescribed point on the
10 substrate,

the method further comprising, after the step 3, a step for releasing the bonded probe from the probe fixing unit.